IN THE CLAIMS:

The following listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) A reconfigurable measurement system, comprising:

a computer system comprising a processor and a memory;

wherein the memory stores a measurement program, wherein the measurement program specifies a measurement function;

wherein the memory also stores a program which is executable to generate a hardware configuration program based on the measurement program; and

a device coupled to the computer system, wherein the device includes:

a programmable hardware element, wherein the hardware configuration program is operable to be deployed onto the programmable hardware element; and

one or more fixed hardware resources coupled to the programmable hardware element;

wherein the hardware configuration program specifies a configuration for the programmable hardware element that implements the measurement function;

wherein the hardware configuration program further specifies usage of the one or more fixed hardware resources by the programmable hardware element in performing the measurement function; and

wherein, after the hardware configuration program is deployed onto the programmable hardware element, the device is operable to perform the measurement function, wherein the programmable hardware element is operable to:

directly perform a first portion of the measurement function; and

invoke the one or more fixed hardware resources to perform a second portion of the measurement function.

2. (Original) The reconfigurable measurement system of claim 1,

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wherein the device being operable to perform the measurement function comprises the programmable hardware element being operable to perform the measurement function in conjunction with the one or more fixed hardware resources.

3. (Cancelled)

4. (Currently Amended) The reconfigurable measurement system of claim [[3]]1, wherein the hardware configuration program specifies:

the first portion of the measurement function to be performed directly by the programmable hardware element; and

usage of the one or more fixed hardware resources by the programmable hardware element to perform the second portion of the measurement function.

5. (Original) The reconfigurable measurement system of claim 1, wherein the one or more fixed hardware resources are operable to provide one or more of:

a control and data path to the computer system;

I/O interfacing to an external system;

optimized hardware elements; and

basic operating services.

6. (Original) The reconfigurable measurement system of claim 1, wherein the programmable hardware element is operable to perform one or more of: I/O interfacing, timing and triggering, inline processing, and embedded decision-making.

7. (Original) The reconfigurable measurement system of claim 1, wherein the device further comprises a processor and memory; wherein at least a portion of the measurement program is operable to be stored in the memory and executed by the processor.

8. (Original) The reconfigurable measurement system of claim 1,

wherein the programmable hardware element includes a processor;

wherein at least a portion of the measurement program is operable to be executed by the processor.

9. (Original) The reconfigurable measurement system of claim 1,

wherein the programmable hardware element is configurable to implement a processor;

wherein at least a portion of the measurement program is operable to be executed by the processor.

10. (Original) The reconfigurable measurement system of claim 1,

wherein the programmable hardware element includes a reconfigurable analog portion;

wherein at least a portion of the measurement program is operable to be implemented by the reconfigurable analog portion.

11. (Original) The reconfigurable measurement system of claim 10,

wherein the reconfigurable analog portion comprises high-level analog components.

12. (Original) The reconfigurable measurement system of claim 10,

wherein the reconfigurable analog portion comprises low-level analog components which are operable to be configured to implement high-level analog components.

13. (Original) The reconfigurable measurement system of claim 1,

wherein the memory stores an application development environment for creating the measurement program.

14. (Cancelled)

15. (Currently Amended) The reconfigurable measurement system of claim 1,

wherein the measurement program comprises a graphical program, wherein the graphical program comprises a plurality of interconnected nodes that visually represent functionality of the graphical program.

16. (Original) The reconfigurable measurement system of claim 15,

wherein the graphical program comprises a block diagram portion and a front panel portion;

wherein the program is executable to generate a hardware configuration program based on the block diagram portion; and

wherein the computer system is operable to display the front panel portion.

17. (Original) The reconfigurable measurement system of claim 1, wherein the measurement function comprises one or more of signal acquisition, signal conditioning, signal conversion, and measurement analysis.

18. (Original) The reconfigurable measurement system of claim 1,

wherein the programmable hardware element is a field programmable gate array (FPGA).

19. (Original) The reconfigurable measurement system of claim 1,

wherein the computer system is operable to display one or more panels on the display while the programmable hardware element in the device executes to perform the measurement function on the signal, wherein at least one of the one or more panels displays the measured signal.

20. (Original) The reconfigurable measurement system of claim 1,

wherein the device includes one or more slots adapted to receive one or more measurement modules;

wherein the device further includes a measurement module included in a slot of the device, wherein the measurement module implements a portion of the measurement function.

21. (Original) The reconfigurable measurement system of claim 20,

wherein the measurement module includes:

an input for acquiring a signal; and

measurement circuitry coupled to the input, wherein the measurement circuitry is operable to perform one or more of signal conditioning and signal conversion;

wherein the device is executable to perform the measurement function on an acquired signal.

22. (Original) The reconfigurable measurement system of claim 20,

wherein the measurement module further includes:

interface circuitry, wherein the interface circuitry is operable to provide an interface for the measurement circuitry;

wherein the interface circuitry is operable to provide an interface protocol describing the interface;

wherein the programmable hardware element is programmable to interface with the measurement module in accordance with the communicated interface protocol; and

wherein the device is operable to perform as one or more of a measurement device and a control device.

23. (Original) The reconfigurable measurement system of claim 22,

wherein the device is operable to communicate the provided interface protocol describing the interface to the computer system; and

wherein the computer system is operable to program the programmable hardware element to implement the interface protocol.

24. (Original) The reconfigurable measurement system of claim 22,

wherein the device is a card comprised in a slot of the computer system

25. (Original) The reconfigurable measurement system of claim 22,

wherein the device is coupled to the computer system over a network

26. (Currently Amended) A reconfigurable control system, comprising:

a computer system comprising a processor and a memory;

wherein the memory stores a control program, wherein the control program specifies a control function;

wherein the memory also stores a program which is executable to generate a hardware configuration program based on the control program; and

a device coupled to the computer system, wherein the device includes:

a programmable hardware element, wherein the hardware configuration program is operable to be deployed onto the programmable hardware element; and

one or more fixed hardware resources coupled to the programmable hardware element;

wherein the hardware configuration program specifies a configuration for the programmable hardware element that implements the control function;

wherein the hardware configuration program further specifies usage of the one or more fixed hardware resources by the programmable hardware element in performing the control function; and

wherein, after the hardware configuration program is deployed onto the programmable hardware element, the device is operable to perform the control function, wherein the programmable hardware element is operable to:

directly perform a first portion of the control function; and

invoke the one or more fixed hardware resources to perform a second portion of the control function.

27. (Original) The reconfigurable control system of claim 26,

wherein the device being operable to perform the control function comprises the programmable hardware element being operable to perform the control function in conjunction with the one or more fixed hardware resources.

28. (Cancelled)

29. (Currently Amended) The reconfigurable control system of claim [[28]]26, wherein the hardware configuration program specifies:

the first portion of the control function to be performed directly by the programmable hardware element; and

usage of the one or more fixed hardware resources by the programmable hardware element to perform the second portion of the control function.

30. (Original) The reconfigurable control system of claim 26, wherein the one or more fixed hardware resources are operable to provide one or more of:

a control and data path to the computer system;

I/O interfacing to an external system;

optimized hardware elements; and

basic operating services.

31. (Original) The reconfigurable control system of claim 26, wherein the programmable hardware element is operable to perform one or more of: I/O interfacing, timing and triggering, inline processing, and embedded decision-making.

32. (Original) The reconfigurable control system of claim 26, wherein the device further comprises a processor and memory; and

wherein at least a portion of the control program is operable to be stored in the memory and executed by the processor.

33. (Original) The reconfigurable control system of claim 26, wherein the programmable hardware element includes a processor; and

wherein at least a portion of the control program is operable to be executed by the processor.

34. (Original) The reconfigurable control system of claim 26,

wherein the programmable hardware element is configurable to implement a processor; and

wherein at least a portion of the control program is operable to be executed by the processor.

35. (Original) The reconfigurable control system of claim 26,

wherein the programmable hardware element includes a reconfigurable analog portion; and

wherein at least a portion of the control program is operable to be implemented by the reconfigurable analog portion.

36. (Currently Amended) The reconfigurable control system of claim [[26]]35,

wherein the reconfigurable analog portion comprises high-level analog components.

37. (Currently Amended) The reconfigurable control system of claim [[26]]35,

wherein the reconfigurable analog portion comprises low-level analog components which are operable to be configured to implement high-level analog components.

38. (Original) The reconfigurable control system of claim 26,

wherein the memory stores an application development environment for creating the control program.

39. (Currently Amended) The reconfigurable measurement system of claim [[38]]26,

wherein the device includes one or more slots adapted to receive one or more control modules; and

wherein the device further includes a control module included in a slot of the device, and wherein the control module implements a portion of the measurement function.

40. (Currently Amended) The reconfigurable control system of claim 26,

wherein the control program comprises a graphical program, wherein the graphical program comprises a plurality of interconnected nodes that visually represent functionality of the graphical program.

41. (Original) The reconfigurable control system of claim 40,

wherein the graphical program comprises a block diagram portion and a front panel portion;

wherein the program is executable to generate a hardware configuration program based on the block diagram portion;

wherein the computer system is operable to display the front panel portion.

42. (Original) The reconfigurable control system of claim 26, wherein the control function comprises one or more of signal acquisition, signal conditioning, signal conversion, and control analysis.

43. (Original) The reconfigurable control system of claim 26,

wherein the programmable hardware element is an FPGA.

44. (Original) The reconfigurable control system of claim 26,

wherein the computer system is operable to display one or more panels on the display while the programmable hardware element in the device executes to perform the control function on the signal, wherein at least one of the one or more panels displays the measured signal.

45. (Original) The reconfigurable control system of claim 26,

wherein the device includes one or more slots adapted to receive one or more control modules; and

wherein the device further includes a control module included in a slot of the device, wherein the control module implements a portion of the control function.

46. (Currently Amended) The reconfigurable control system of claim [[26]]45,

wherein the control module includes:

an input for acquiring a signal; and

control circuitry coupled to the input, wherein the control circuitry is operable to perform one or more of signal conditioning and signal conversion;

wherein the device is executable to perform the control function on an acquired signal.

47. (Original) The reconfigurable control system of claim 46,

wherein the control module further includes:

interface circuitry, wherein the interface circuitry is operable to provide an interface for the control circuitry;

wherein the interface circuitry is operable to provide an interface protocol describing the interface;

wherein the programmable hardware element is programmable to interface with the control module in accordance with the communicated interface protocol; and

wherein the device is operable to perform as one or more of a control device and a control device.

48. (Original) The reconfigurable control system of claim 47,

wherein the device is operable to communicate the provided interface protocol describing the interface to the computer system; and

wherein the computer system is operable to program the programmable hardware element to implement the interface protocol.

49. (Original) The reconfigurable control system of claim 47,

wherein the device is operable to communicate the provided interface protocol describing the interface to the computer system; and

wherein the computer system is operable to program the programmable hardware element to implement the interface protocol.

50. (Currently Amended) The reconfigurable control system of claim 26,

wherein the device is a card comprised in a slot of the computer system.

51–77. (Cancelled)

78. (Currently Amended) A reconfigurable [[measurement]] system, comprising:

a computer system comprising a processor and a memory;

wherein the memory stores a program, wherein the program specifies a function;

wherein the memory also stores a program which is executable to generate a hardware configuration program based on the program; and

a device coupled to the computer system, wherein the device includes:

a programmable hardware element, wherein the hardware configuration program is operable to be deployed onto the programmable hardware element; and

one or more fixed hardware resources coupled to the programmable hardware element;

wherein the hardware configuration program specifies a configuration for the programmable hardware element that implements the function;

wherein the hardware configuration program further specifies usage of the one or more fixed hardware resources by the programmable hardware element in performing the function; and

wherein, after the hardware configuration program is deployed onto the programmable hardware element, the device is operable to perform the function, wherein the programmable hardware element is operable to:

directly perform a first portion of the function; and

invoke the one or more fixed hardware resources to perform a second portion of the function.

79. (Currently Amended) The reconfigurable [[measurement]] system of claim 78,

wherein the device being operable to perform the function comprises the programmable hardware element being operable to perform the function in conjunction with the one or more fixed hardware resources.

80-105. (Cancelled)

106. (New) The reconfigurable system of claim 78,

wherein the program comprises a graphical program, and wherein the graphical program comprises a plurality of interconnected nodes that visually represent functionality of the graphical program.

107. (New) The reconfigurable system of claim 78,

wherein the one or more fixed hardware resources are operable to provide one or more of:

a control and data path to the computer system;

I/O interfacing to an external system;

optimized hardware elements; and

basic operating services.

108. (New) The reconfigurable system of claim 78, wherein the one or more fixed hardware resources comprise one or more of:

a counter;

a timer;

an A/D converter;

a D/A converter;

signal conditioning logic;

computer interface logic;

one or more digital lines;

bus interface logic; and

a control data bus.

109. (New) The reconfigurable measurement system of claim 1, wherein the one or more fixed hardware resources comprise one or more of:

a counter;

a timer;

an A/D converter;

a D/A converter;

signal conditioning logic;

computer interface logic;

one or more digital lines;

bus interface logic; and

a control data bus.

110. (New) The reconfigurable control system of claim 26, wherein the one or more fixed hardware resources comprise one or more of:

a counter;

a timer;

an A/D converter;

a D/A converter;

signal conditioning logic;

computer interface logic;

one or more digital lines;

bus interface logic; and

a control data bus.

111. (New) A reconfigurable measurement system, comprising:

a computer system comprising a processor and a memory;

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wherein the memory stores a measurement program, wherein the measurement program specifies a measurement function;

wherein the memory also stores a program which is executable to generate a hardware configuration program based on the measurement program; and

a device coupled to the computer system, wherein the device includes:

a programmable hardware element, wherein the hardware configuration program is operable to be deployed onto the programmable hardware element;

one or more fixed hardware resources coupled to the programmable hardware element; and

a processor and memory, wherein at least a portion of the measurement program is operable to be stored in the memory and executed by the processor;

wherein the hardware configuration program specifies a configuration for the programmable hardware element that implements the measurement function;

wherein the hardware configuration program further specifies usage of the one or more fixed hardware resources by the programmable hardware element in performing the measurement function; and

wherein, after the hardware configuration program is deployed onto the programmable hardware element, the device is operable to perform the measurement function.

112. (New) A reconfigurable measurement system, comprising:

a computer system comprising a processor and a memory;

wherein the memory stores a measurement program, wherein the measurement program specifies a measurement function;

wherein the memory also stores a program which is executable to generate a hardware configuration program based on the measurement program; and

a device coupled to the computer system, wherein the device includes:

a programmable hardware element, wherein the hardware configuration program is operable to be deployed onto the programmable hardware element, wherein the programmable hardware element includes a processor, and wherein at least a portion of the measurement program is operable to be executed by the processor; and

one or more fixed hardware resources coupled to the programmable hardware element;

wherein the hardware configuration program specifies a configuration for the programmable hardware element that implements the measurement function;

wherein the hardware configuration program further specifies usage of the one or more fixed hardware resources by the programmable hardware element in performing the measurement function; and

wherein, after the hardware configuration program is deployed onto the programmable hardware element, the device is operable to perform the measurement function.

113. (New) A reconfigurable measurement system, comprising:

a computer system comprising a processor and a memory;

wherein the memory stores a measurement program, wherein the measurement program specifies a measurement function;

wherein the memory also stores a program which is executable to generate a hardware configuration program based on the measurement program; and

a device coupled to the computer system, wherein the device includes: .

a programmable hardware element, wherein the hardware configuration program is operable to be deployed onto the programmable hardware element, wherein the programmable hardware element is configurable to implement a processor, and wherein at least a portion of the measurement program is operable to be executed by the processor; and

one or more fixed hardware resources coupled to the programmable hardware element;

wherein the hardware configuration program specifies a configuration for the programmable hardware element that implements the measurement function;

wherein the hardware configuration program further specifies usage of the one or more fixed hardware resources by the programmable hardware element in performing the measurement function; and

wherein, after the hardware configuration program is deployed onto the programmable hardware element, the device is operable to perform the measurement function.

114. (New) A reconfigurable measurement system, comprising:

a computer system comprising a processor and a memory;

wherein the memory stores a measurement program, wherein the measurement program specifies a measurement function;

wherein the memory also stores a program which is executable to generate a hardware configuration program based on the measurement program; and

a device coupled to the computer system, wherein the device includes:

a programmable hardware element, wherein the hardware configuration program is operable to be deployed onto the programmable hardware element, wherein the programmable hardware element includes a reconfigurable analog portion, and wherein at least a portion of the measurement program is operable to be implemented by the reconfigurable analog portion; and

one or more fixed hardware resources coupled to the programmable hardware element;

wherein the hardware configuration program specifies a configuration for the programmable hardware element that implements the measurement function;

wherein the hardware configuration program further specifies usage of the one or more fixed hardware resources by the programmable hardware element in performing the measurement function; and

wherein, after the hardware configuration program is deployed onto the programmable hardware element, the device is operable to perform the measurement function.

115. (New) The reconfigurable measurement system of claim 114,

wherein the reconfigurable analog portion comprises high-level analog components.

116. (New) The reconfigurable measurement system of claim 114,

wherein the reconfigurable analog portion comprises low-level analog components which are operable to be configured to implement high-level analog components.

117. (New) A reconfigurable measurement system, comprising:

a computer system comprising a processor and a memory;

wherein the memory stores a measurement program, wherein the measurement program specifies a measurement function, wherein the measurement program comprises a graphical program, wherein the graphical program comprises a block diagram portion comprising a plurality of interconnected nodes that visually represent functionality of the graphical program and a front panel portion;

wherein the memory also stores a program which is executable to generate a hardware configuration program based on the block diagram portion; and

wherein the computer system is operable to display the front panel portion; and

a device coupled to the computer system, wherein the device includes:

a programmable hardware element, wherein the hardware configuration program is operable to be deployed onto the programmable hardware element; and

one or more fixed hardware resources coupled to the programmable hardware element;

wherein the hardware configuration program specifies a configuration for the programmable hardware element that implements the measurement function;

wherein the hardware configuration program further specifies usage of the one or more fixed hardware resources by the programmable hardware element in performing the measurement function; and

wherein, after the hardware configuration program is deployed onto the programmable hardware element, the device is operable to perform the measurement function.

118. (New) A reconfigurable measurement system, comprising:

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a computer system comprising a processor and a memory;

wherein the memory stores a measurement program, wherein the measurement program specifies a measurement function;

wherein the memory also stores a program which is executable to generate a hardware configuration program based on the measurement program; and

a device coupled to the computer system, wherein the device includes:

a programmable hardware element, wherein the hardware configuration program is operable to be deployed onto the programmable hardware element;

one or more fixed hardware resources coupled to the programmable hardware element;

one or more slots adapted to receive one or more measurement modules; and

a measurement module included in a slot of the device, wherein the measurement module implements a portion of the measurement function;

wherein the hardware configuration program specifies a configuration for the programmable hardware element that implements the measurement function;

wherein the hardware configuration program further specifies usage of the one or more fixed hardware resources by the programmable hardware element in performing the measurement function; and

wherein, after the hardware configuration program is deployed onto the programmable hardware element, the device is operable to perform the measurement function.

119. (New) The reconfigurable measurement system of claim 118,

wherein the measurement module includes:

an input for acquiring a signal; and

measurement circuitry coupled to the input, wherein the measurement circuitry is operable to perform one or more of signal conditioning and signal conversion;

wherein the device is executable to perform the measurement function on an acquired signal.

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120. (New) The reconfigurable measurement system of claim 118,

wherein the measurement module further includes:

interface circuitry, wherein the interface circuitry is operable to provide an interface for the measurement circuitry;

wherein the interface circuitry is operable to provide an interface protocol describing the interface;

wherein the programmable hardware element is programmable to interface with the measurement module in accordance with the communicated interface protocol; and

wherein the device is operable to perform as one ,or more of a measurement device and a control device.

121. (New) The reconfigurable measurement system of claim 120,

wherein the device is operable to communicate the provided interface protocol describing the interface to the computer system; and

wherein the computer system is operable to program the programmable hardware element to implement the interface protocol.

122. (New) The reconfigurable measurement system of claim 120,

wherein the device is a card comprised in a slot of the computer system

123. (New) The reconfigurable measurement system of claim 120,

wherein the device is coupled to the computer system over a network

124. (New) A reconfigurable control system, comprising:

a computer system comprising a processor and a memory;

wherein the memory stores a control program, wherein the control program specifies a control function;

wherein the memory also stores a program which is executable to generate a hardware configuration program based on the control program; and

a device coupled to the computer system, wherein the device includes:

a programmable hardware element, wherein the hardware configuration program is operable to be deployed onto the programmable hardware element;

one or more fixed hardware resources coupled to the programmable hardware element; and

a processor and memory, wherein at least a portion of the control program is operable to be stored in the memory and executed by the processor;

wherein the hardware configuration program specifies a configuration for the programmable hardware element that implements the control function;

wherein the hardware configuration program further specifies usage of the one or more fixed hardware resources by the programmable hardware element in performing the control function; and

wherein, after the hardware configuration program is deployed onto the programmable hardware element, the device is operable to perform the control function.

125. (New) A reconfigurable control system, comprising:

a computer system comprising a processor and a memory;

wherein the memory stores a control program, wherein the control program specifies a control function;

wherein the memory also stores a program which is executable to generate a hardware configuration program based on the control program; and

a device coupled to the computer system, wherein the device includes:

a programmable hardware element, wherein the hardware configuration program is operable to be deployed onto the programmable hardware element, wherein the programmable hardware element includes a reconfigurable analog portion, and wherein at least a portion of the control program is operable to be implemented by the reconfigurable analog portion; and

one or more fixed hardware resources coupled to the programmable hardware element;

wherein the hardware configuration program specifies a configuration for the programmable hardware element that implements the control function;

wherein the hardware configuration program further specifies usage of the one or more fixed hardware resources by the programmable hardware element in performing the control function; and

wherein, after the hardware configuration program is deployed onto the programmable hardware element, the device is operable to perform the control function.

126. (New) The reconfigurable control system of claim 125,

wherein the reconfigurable analog portion comprises high-level analog components.

127. (New) The reconfigurable control system of claim 125,

wherein the reconfigurable analog portion comprises low-level analog components which are operable to be configured to implement high-level analog components.

128. (New) A reconfigurable control system, comprising:

a computer system comprising a processor and a memory;

wherein the memory stores a control program, wherein the control program specifies a control function;

wherein the memory also stores a program which is executable to generate a hardware configuration program based on the control program; and

a device coupled to the computer system, wherein the device includes:

a programmable hardware element, wherein the hardware configuration program is operable to be deployed onto the programmable hardware element;

one or more fixed hardware resources coupled to the programmable hardware element;

one or more slots adapted to receive one or more control modules; and

a control module included in a slot of the device, and wherein the control module implements a portion of the measurement function;

wherein the hardware configuration program specifies a configuration for the programmable hardware element that implements the control function;

wherein the hardware configuration program further specifies usage of the one or more fixed hardware resources by the programmable hardware element in performing the control function; and

wherein, after the hardware configuration program is deployed onto the programmable hardware element, the device is operable to perform the control function.

129. (New) A reconfigurable control system, comprising:

a computer system comprising a processor and a memory;

wherein the memory stores a control program, wherein the control program specifies a control function, wherein the control program comprises a graphical program, wherein the graphical program comprises a block diagram portion comprising a plurality of interconnected nodes that visually represent functionality of the graphical program and a front panel portion;

wherein the memory also stores a program which is executable to generate a hardware configuration program based on the block diagram portion; and

wherein the computer system is operable to display the front panel portion; and

a device coupled to the computer system, wherein the device includes:

a programmable hardware element, wherein the hardware configuration program is operable to be deployed onto the programmable hardware element; and

one or more fixed hardware resources coupled to the programmable hardware element;

wherein the hardware configuration program specifies a configuration for the programmable hardware element that implements the control function;

wherein the hardware configuration program further specifies usage of the one or more fixed hardware resources by the programmable hardware element in performing the control function; and

wherein, after the hardware configuration program is deployed onto the programmable hardware element, the device is operable to perform the control function.

130. (New) A reconfigurable control system, comprising:

a computer system comprising a processor and a memory;

wherein the memory stores a control program, wherein the control program specifies a control function;

wherein the memory also stores a program which is executable to generate a hardware configuration program based on the control program; and

a device coupled to the computer system, wherein the device includes:

a programmable hardware element, wherein the hardware configuration program is operable to be deployed onto the programmable hardware element;

one or more fixed hardware resources coupled to the programmable hardware element;

one or more slots adapted to receive one or more control modules; and

a control module included in a slot of the device, wherein the control module implements a portion of the control function;

wherein the hardware configuration program specifies a configuration for the programmable hardware element that implements the control function;

wherein the hardware configuration program further specifies usage of the one or more fixed hardware resources by the programmable hardware element in performing the control function; and

wherein, after the hardware configuration program is deployed onto the programmable hardware element, the device is operable to perform the control function.

131. (New) The reconfigurable control system of claim 130,

wherein the control module includes:

an input for acquiring a signal; and

control circuitry coupled to the input, wherein the control circuitry is operable to perform one or more of signal conditioning and signal conversion;

wherein the device is executable to perform the control function on an acquired signal.

132. (New) The reconfigurable control system of claim 131,

wherein the control module further includes:

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interface circuitry, wherein the interface circuitry is operable to provide an interface for the control circuitry;

wherein the interface circuitry is operable to provide an interface protocol describing the interface;

wherein the programmable hardware element is programmable to interface with the control module in accordance with the communicated interface protocol; and

wherein the device is operable to perform as one or more of a control device and a control device.

133. (New) The reconfigurable control system of claim 132,

wherein the device is operable to communicate the provided interface protocol describing the interface to the computer system; and

wherein the computer system is operable to program the programmable hardware element to implement the interface protocol.

134. (New) The reconfigurable control system of claim 132,

wherein the device is operable to communicate the provided interface protocol describing the interface to the computer system; and

wherein the computer system is operable to program the programmable hardware element to implement the interface protocol.

135. (New) A reconfigurable control system, comprising:

a computer system comprising a processor and a memory;

wherein the memory stores a control program, wherein the control program specifies a control function;

wherein the memory also stores a program which is executable to generate a hardware configuration program based on the control program; and

a device coupled to the computer system, wherein the device is a card comprised in a slot of the computer system, and wherein the device includes:

a programmable hardware element, wherein the hardware configuration program is operable to be deployed onto the programmable hardware element; and

one or more fixed hardware resources coupled to the programmable hardware element;

wherein the hardware configuration program specifies a configuration for the programmable hardware element that implements the control function;

wherein the hardware configuration program further specifies usage of the one or more fixed hardware resources by the programmable hardware element in performing the control function; and

wherein, after the hardware configuration program is deployed onto the programmable hardware element, the device is operable to perform the control function.